Proposed TRI Dioxin Reporting Rule Change Designed to Enhance Public Understanding of Dioxin Toxicity

EPA is proposing revisions of the reporting requirements for the Toxics Release Inventory (TRI) dioxin and dioxin-like compounds category. There are seventeen distinct members of this chemical category listed under TRI. EPA currently requires that facilities report, in grams, the total amount of dioxin and dioxin-like compounds released from the facility. When available, the facility must also provide a single "distribution," showing how that total is divided among the individual dioxin and dioxin-like compounds. This single distribution must represent either total releases, or releases to the media (air, land, water) for which the facility has the best information.

Although useful, total releases are not the best measure of the actual toxicity of these compounds because each compound has its own level of toxicity. To account for how compounds vary in toxicity, EPA uses a weighted value called toxic equivalents (TEQs). To calculate TEQs, EPA assigns a value describing how toxic each dioxin and dioxin-like compound is compared to the most toxic members of the category: 2,3,7,8-tetrachlorodibenzo-p-dioxin and 1,2,3,7,8-pentachlorodibenzo-p-dioxin.

Expressing data for dioxin and dioxin-like compounds as TEQs allows the public to understand the toxicity of releases and waste management at facilities that report under the TRI program. For example, a facility releasing 3 grams of some combination of dioxin and dioxin-like compounds may or may not be of greater interest than a facility releasing 1 gram of a different combination. However, a facility releasing 3 grams TEQ of dioxins is of

In This Issue

Editorial

By now, you've no doubt read or heard that the State Emergency Management Agency (SEMA) has been reorganized as the Indiana Department of Homeland Security (IDHS), under the directorship of J. Eric Dietz, Ph.D. (See article in the attached issue of *Hoosier Safety*).

Although this is an important reorganization that will result in significant changes in the way in which services and oversight previously provided by SEMA will now be provided by IDHS, the level of support of Indiana's LEPCs by the Indiana Emergency Response Commission (IERC), IDHS, and the Indiana Department of Environmental Management (IDEM) will in no way be compromised nor diminished.

The Indiana Emergency Response Commission (IERC) was given statutory existence by the Indiana Legislature by IC 13-25-1 and IC 13-25-2, and although its composition by particular individuals may change, its representational categories and legislative mandate will remain the same, unless they are changed by the Legislature.

The IERC's two Field Coordinators, Kathy Dayhoff-Dwyer (317-234-2583) and Ian Ewusi-Wilson (317-232-4679), will continue to provide direct support to the LEPCs in their respective geographical areas, under the supervision of Dave Crose (317-232-3837).

The SERCULAR will continue to support Indiana's LEPCs, reporting facilities, and the public as a quarterly newsletter, and will continue to solicit input from all groups of stakeholders in Indiana's SARA Title III Program.

As soon as Governor Daniels appoints a chairman of the IERC, the tradition of a "Chairman's Corner" in each issue of *The SERCULAR* will resume.

Please join your newsletter's editors in wishing Director Dietz every success in the vitally important work of making myriad provisions for the public safety of the citizens of Indiana.

greater environmental importance than one releasing 1 gram TEQ to the same environmental medium (e.g., air).

TEQs will allow the public to make more informed environmental decisions within their communities. Expressing dioxin releases and waste management information in grams TEQ will also permit easier comparisons between TRI data and other EPA and international data.

The proposal contains three options. Each would require reporting of TEQs or information that can be used to calculate TEQs, for each member of the chemical category, in addition to the total grams released for the entire category. Each would also remove the requirement to report the single distribution of compounds in the category. The two preferred options (options two and three) would replace that distribution with reporting of the mass quantity of each individual member of the category; they differ primarily in whether the Agency or the facility would perform TEQ computations. Option one would not require reporting of releases for each compound in the category.

The proposal would also require that all reports for dioxin and dioxin-like compounds be filed electronically on a new Form R-D.

Q: What are dioxin and dioxin-like compounds?

A: Dioxin and dioxin-like compounds are trace level unintentional byproducts of some forms of combustion and several industrial chemical processes. They are not commercial chemical products.

Dioxins are transported primarily through the air and are deposited on surfaces; they have been detected in air, soil, sediments, and food.

The principal route by which dioxins are introduced to most rivers, streams, and lakes is soil erosion and storm water runoff from urban areas. Industrial discharges can significantly elevate water concentrations near the point of discharge to rivers and streams. Major contributors of dioxin to the environment include:

- Incineration of municipal solid waste
- Incineration of medical waste
- Secondary copper smelting
- Forest fires
- Land application of sewage sludge
- Cement kilns
- Coal fired power plants
- Residential wood burning
- Chlorine bleaching of wood pulp

Backyard burning of household waste may also be an important source.

Q: What is a TEQ and how is it calculated?

A: TEQs are calculated values that allow comparison of the toxicity of different combinations of dioxins and dioxin-like compounds. The two most toxic compounds are the comparison point. For example, a mixture weighing 10g with a TEQ of 5g would be as toxic as 5g of either of those compounds.

In order to calculate a TEQ, a toxic equivalent factor (TEF) is assigned to each member of the dioxin and dioxin-like compounds category. The TEF is the ratio of the toxicity of one of the compounds in this category to the toxicity of the two most toxic compounds in the category, which are each assigned a TEF of 1: 2,3,7,8-tetrachlorodibenzo-p-dioxin (commonly referred to as dioxin) and 1,2,3,7,8-pentachlorodibenzo-p-dioxin. TEFs that have been established through international agreements currently range from 1 to 0.0001.

A TEQ is calculated by multiplying the actual grams weight of each dioxin and dioxin-like compound by its corresponding TEF (e.g., 10 grams X 0.1 TEF = 1 gram TEQ) and then summing the results. The number that results from this calculation is referred to as grams TEQ.

For example, consider the following 60g mixture:
10g of compound A, with a TEF of 1
20g of compound B, with a TEF of 0.5
30g of compound C, with a TEF of 0.2.

The TEQ of this mixture would be:
(10g x 1) + (20g x 0.5) + (30g x 0.2) = 26g TEQ.

Q: Why are TEQs useful? What are their drawbacks?

A: Using TEQs helps people understand the relative toxicity of the chemical release information. For example, it is not possible to conclude that two facilities, each releasing 2 grams of dioxin and dioxin-like compounds are of equal environmental importance without considering other factors. It may be possible, however, to conclude that two facilities each releasing 2 grams TEQ are of equal importance if the releases from each facility are to the same environmental medium (e.g., air)

FIELD NOTES

by Ian Ewusi-Wilson and Kathy Dayhoff-Dwyer

As we all know, there are no guarantees in life, and with that fact comes change. How we deal with change will usually dictate the pace of our destinies. As most of you are aware, in April, the State Emergency Management Agency (SEMA) as we once knew it has evolved to follow the federal level of emergency management to be renamed and restructured as the Indiana Department of Homeland Security. Many of the same folks are still Vanderburgh County Emergency Management Agency and present IERC Commissioner for their outstanding presentations and support of the three workshops that were conducted. Washington/Orange County Local Emergency Planning District, Putnam County LEPC and Ripley County LEPC were the three test sites for this program. We appreciate their contributions to making the workshops a success. We have

| Putnam County Workshop | Washington/Orange County Workshop | Ripley County Workshop |

here, but in different divisions, and they may have new responsibilities. This leads us to your LEPC Field Coordinators. We are now in the Division of Planning, under Local Government Support. Our telephone numbers are the same, but our email has changed from "sema" to "dhs.in.gov".

In addition to these changes, we have developed a new program that was tested in the southern half of Indiana. We began conducting "LEPC 101 Workshops," which were presented with the assistance of LEPCs and past and present IERC Commissioners. Workshop topics included "History of SARA Title III and Policy Issues," "Reporting Requirements," "Spending Categories," "Six Secrets of Success," and "Marketing Strategies by Building a Public and Private Partnership." We would like to thank Mr. Sam George, VP of Madison Chemical and past IERC Commissioner, and Mr. Sherman Greer, Director of Evansville/

found that this program was well received and described as very beneficial by many of the members and non-members who attended. We hope to offer this workshop on an annual basis, keeping LEPCs up to date on changes and working with new members regarding what SARA Title III/ EPCRA is all about. If you would like to sponsor a workshop in your county, contact your Field Coordinator to schedule a date.

As a quick reminder, at this point in the new year, the following requirements should have been met and their documentation sent to the IERC:

1. Legal Notice
2. Annual Roster
3. Annual Fiscal Report
4. Minutes of at least a minimum of two LEPC meetings by the end of June

InfraGard: Breaking Through the Stovepipes

by Steve Pappas, Chairman, Johnson County LEPC

The focus of this article is about sharing information. It will introduce an FBI-sponsored non-governmental organization that is playing a role in conveying security-related information to its membership, discussing how LEPCs and EMAs can participate in enhancing homeland security in their local jurisdictions, and describing how non-profit organizations can benefit by becoming more involved in security-oriented non-governmental organizations. As emergency responders know, Homeland Security is not just a law enforcement issue. Enhancing and maintaining our collective security will require improved communication, coordination, and cooperation among all citizens within the public and private sectors. Sharing information has become the mantra of the day. However, breaking through existing stove pipes of warehoused information in different governmental agencies and a willingness by the private sector to actively participate are challenges that need to be addressed in order to accomplish this goal.

Background

In 2002, the USEPA published their initial Strategic Plan which spelled out goals, objectives and results expected by the USEPA, with regard to partnerships with Local Emergency Planning Committees, building owners, water utilities, and the chemical industry. Also in 2002, the Bioterrorism Act mandated that water utilities in the public and/or private sectors perform vulnerability assessments and update emergency response plans on their systems. In February of 2004, DHS published 6 CFR Part 29: Procedures for Handling Critical Infrastructure Information, as an interim rule. Critical infrastructures have been defined in Presidential Decision Directive 63 and the Homeland Security Presidential Directive 7. They consist of the water and the waste water industry, and governmental operations which include emergency management, emergency medical services, public health, fire and law enforcement, postal and shipping, food and agriculture, banking and finance, the electric and petrochemical industry, telecommunications, computer security, the transportation industry, and the Defense Department.

A recurring theme of these government policies is an emphasis on the need for the public and private sectors to share and expedite the distribution of security-related information.

Most critical infrastructures also have an information analysis and sharing protocol and processing center where security sensitive information is conveyed from the federal level to the agency or critical infrastructure affected. These are termed Information Sharing and Analysis Centers, or ISACs. The industry specific ISACs use secure internet portals or web sites in which classified information is distributed to the appropriate agency or jurisdiction. However, if a critical infrastructure is affected by an incident, who will get what kind of information and what actions to take are issues that will vary from one organization to another. One of the private sector's biggest concerns has been and continues to be the handling and distribution of industry- specific and competition-sensitive information. In the virtual age of information, effective response to future incidents will require a collaborative effort of the public and private sectors, and organizations and non-profit associations at the local, state and federal level. Although the "good guys" (for this article, critical infrastructure employees) will not lead in a counterattack against an adversary, their institutional knowledge of their industry (water for example) could assist the local, state, and federal law enforcement agencies in preventing an incident from becoming a crisis.

The Asymmetric Battlefield of the 21st Century

Over 20 years ago, the United States Army created a new warfare doctrine called AirLand Battle (Operations FM 100-5, 9/82). Within this new doctrine, the military addressed the spectrum of warfare, and envisioned the future battlefield and how our adversaries would try to react. The new doctrine shifted away from using Cold War defensive tactics to an offensive style of warfare where speed, mobility, firepower, and surprise could disrupt the enemy's decision-making cycle, attacking them in depth and then defeating them at their weakest point. At the same time, the U.S. Army and other branches in the military began to integrate computer-based technology into the new doctrine and the decision-making process. Battlefield command, control, communications, and intelligence gathering functions were integrated into a new acronym and automated process called "C3I." The

authors correctly predicted that future battle areas could be indistinct, vague or asymmetric; that the rear urban areas or cities and supply areas would be subject to attack by enemy agents, sabotage, or terrorism. Targets of opportunity in rear urban areas would include critical infrastructures such as airports, telecommunications, emergency service providers like fire departments, rail terminals, shipping ports, banks, water, gas, or electric utilities. Doctrine writers also described how the opposing forces would conduct operations such as target surveillance, target acquisition, and rehearsals preceding an attack.

"Critical infrastructure" has another definition in the post 9/11 world. In the summer of 2004, a number of Islamic militants were arrested in Pakistan, the United States, and in Great Britain. Three laptop computers, 51 CDs, and over 500 photos of potential targets were confiscated. In addition to critical infrastructures, schematic drawings and locations of schools, hospitals, and shopping malls across the country were catalogued. All of these facilities are targets of opportunity in the asymmetric battlefield of the 21st century. Recently, terrorists in Iraq have reiterated their desire and intent to strike at America's homeland.

Sharing information and networking in the "alphabet soup" of non-profit associations

Most non-profit organizations and associations have their own industry specific newsletters, journals, or magazines to covey industry-specific information to its members. The State Emergency Response Commission's quarterly newsletter, *The SERCULAR* is one example. Serving Indiana's 92 counties, this newsletter provides a variety of information to the emergency responder community. Another association newsletter that provides industry-specific information and networking opportunities is *The Indiana Public Works News*. This publication shares information among 22 non-profit organizations that advertise products and publicize annual events scheduled throughout Indiana. Subscribers to the *Public Works News* are owners, operators, engineers, aviators, and contractors who provide drinking water, electrical power, pave the highways, fly the airspace, or perform floodplain and solid waste management.

The Public Works News also covers associations for elected officials, county and street commissioners, advisory boards and councils that represent the hundreds of cities, towns, and municipalities across the state of Indiana. All of these organizations are involved in creating, maintaining, and improving our community's "critical infrastructures," the fabric that holds every American city, town, and neighborhood together.

InfraGard: a public and private sector partnership

A different kind of Non-Government Organization or NGO and not-for-profit organization that has grown across the nation within the last ten years is InfraGard, a Federal Bureau of Investigation (FBI)-sponsored program. InfraGard's national goal is to build relationships that foster trusted communication and the exchange of information for the safety and security of the American people, our critical infrastructures, and the nation. The FBI envisions this organization as being a public-private sector partnership in which the sharing and dissemination of industry-specific information will be accelerated and actionable.

InfraGard began as a pilot project in 1996 when the Cleveland, Ohio FBI field office asked local computer professionals to assist them in determining how to better protect critical information systems in the public and private sectors. From this new partnership, the first InfraGard chapter was formed to address both cyber and physical threats to the nation's critical infrastructures. There are currently 84 local "chapters" nationwide, two of which are in Indiana – the central Indiana and the Ft. Wayne chapters. Each chapter is governed by a private-sector Board of Directors, and all chapters are established as 501c3 organizations.

The mission of the central Indiana InfraGard chapter is to:

Serve the public and private sector of central Indiana by planning, organizing, and sponsoring events, programs, newsletters, and seminars focused on preserving the security and safety of our homes, communities, and workplaces.

The chapter's goals are to:

1. Gather and distribute security-related information specific to an industry or infrastructure.

2. Educate InfraGard members on the various issues of infrastructure protection at the local, state, and federal levels.

3. Introduce products and services available to the public and private sector designed to enhance and improve facility and community safety and security.

4. Provide seminars and conferences focused on infrastructure protection.

5. Grow the organization.

For more information on becoming a member, visit the central Indiana web site at: *www.infragard-ci.net* or contact Steve Pappas at: steve.pappas@insghtbb.com

Other Resources for Sharing Information

The Indiana Alert Network or IAN is a part of the U.S. Homeland Security Department's Information Network Critical Infrastructure or HSIN-CI program. The goal of IAN is to maximize real-time sharing of situational information without delay and with immediate distribution of intelligence to those in the field who need to act on it. HSIN-CI (which is at the federal level) will use readily available communication methods to rapidly disseminate actionable information to its members, which includes the state of Indiana. The IAN web site is: *www.IAN.IN.gov* Instruction concerning membership is included on the homepage.

Homeland Security's Department of Information Analysis and Infrastructure Protection

Another excellent information source for critical infrastructures is the Department of Homeland Security's Information Analysis and Infrastructure Protection (DHS/ IAIP) department. This DHS department publishes a daily (Monday through Friday) summary and assessment of open-source information concerning significant critical infrastructure issues. This department serves as the national critical infrastructure threat assessment, warning and vulnerability entity. Each daily report is divided by the critical infrastructure sector such as water, transportation, electric, or transportation.

Email to: *dhsdailyadmin@mail.dhs.osis.gov* for subscription information.

Is all quiet on the Indiana front?

Away from your office or the front lines of the asymmetric battlefield, attending an InfraGard seminar could prove beneficial to your organization. InfraGard's intent will be to provide speakers at forums that will discuss a variety of security- and safety-related workplace or community issues. In 2005, we plan to participate with the Emergency Management Alliance of Indiana in their semi-annual meetings in June and October. Our goal will

be to provide topics of interest so that conference attendees and InfraGard members can share lessons learned, acquire new strategies for dealing with situations such as surveillance and targeting activities, incident response strategies, or emergency response policy and procedural development.

Enhancing community security & safety

In September 2002, the USEPA published their first Strategic Plan related to Homeland Security. The Strategic Plan spelled out a number of mandates, goals, results, and responsibilities for the water, chemical and building owners and operators in the post 9/11 world. The Plan included LEPCs and EMAs as agencies that could contribute to conveying security-related information to their communities in a fashion similar to what they are currently required to do with SARA Title III. However, the devil is always in the details. Issues such as classification of information have led to debates concerning what the community has a right to know or if they have a need to know. Today, active participation of critical infrastructures with LEPCs or EMAs activity can be hit or miss. Depending on the commitment and involvement by the county or the private sector, LEPCs and EMAs can be very useful and productive, or they can be inactive. In either case, LEPCs and EMAs are diamonds in the rough. What they can do with the network of agencies that make up the membership and what they can provide for their communities is in many cases not fully understood or utilized.

What InfraGard, LEPCs, and EMAs can do

The 22 non-profit organizations listed in *The Public Works News*, *The SERCULAR* subscribers, InfraGard members, and the private sector could all benefit by becoming more involved in their county LEPCs or EMA Advisory Councils. The Indiana Department of Homeland Security stated four major elements or activities for fiscal year 2005: emergency response planning and training, equipment for first responders, and table-top to full-scale on-site exercises. The vehicle that could facilitate and expedite these activities could be county LEPCs, EMAs, and InfraGard. With offices, staffs and funding available, attaining the USEPA's goal of LEPCs and EMAs working more closely with critical infrastructures and the private

sector can be achieved. Security workshops and seminars could be included as a part of association conferences. Depending on the need, follow-up training could be scheduled at the county's or jurisdiction's location. InfraGard can bring the subject matter experts to the table. The Central Indiana chapter of InfraGard has a number of people in academia, government, and the private sector who can facilitate discussions on a variety of security and safety-related topics.

The aftermath of 9/11/01 has seen significant changes at all levels of our government and our society. Mr. Lee Hamilton, the vice-chair of the 9/11 national commission, said, "Preventing catastrophic terrorism should be the number 1 security objective of the 21st century for all governments." Looking back on what we have witnessed in the last four years, there can be no doubt as to the intent or desire of America's adversary. The consequences and effects of Weapons of Mass Destruction limit our options. The National Commission on Terrorist Attacks Upon the United States, also known as the 9/11 Commission, urged the implementation of recommendations they felt could make the greatest difference, some of which have already been implemented. America will be challenged as a country to maintain our near-term focus and long-term commitment to prevent another "9/11" incident from ever happening again. NGOs such as InfraGard, non-profit organizations and associations, LEPCs, and EMAs can all contribute to enhancing the security and safety of our cities and towns if we can break the stovepipe mentality and get on board. Being committed and involved in the process will be key factors of success. There is no other course of action, and failure is not an option.

References:

U.S.EPA Strategic Plan for Homeland Security, September 2002; EPA's Baseline Threat Information for Vulnerability Assessments of Community Water Systems; undated; NIPC Risk Management: An Essential Guide to Protecting Critical Assets, November, 2002; Guidance for Water utility response, recovery and remediation actions for man-made and/or technological emergencies dated April, 2002; Indiana Department of Homeland Security Strategic Plan, dated 2004.

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On the other hand, it is not possible on the basis of TEQ alone to establish whether the two sources are making equal strides in release or waste minimization. Instead, it is necessary to know the actual mass of each compound that is released.

Q: What changes is EPA proposing for the reporting for the dioxin and dioxin-like compounds category under TRI?

A: EPA is proposing to require reporting of TEQ data and/or the individual grams data for *each member* of the category for each release, by medium, and each waste management process, in addition to the total category grams data currently reported. In addition, EPA is proposing that all facilities report using a new Form R-D specifically developed for reporting dioxin and dioxin-like compounds, and that all Form R-Ds be filed electronically. EPA is also proposing to eliminate the current requirement to report a single distribution for the dioxin and dioxin-like compounds category, since this information will be redundant when today's proposal is finalized .

Q: Why is EPA proposing these changes to the reporting for dioxin and dioxin-like compounds?

A: The addition of TEQ reporting will allow further understanding of the releases and waste management quantities currently reported to the TRI for dioxin and dioxin-like compounds. In addition, TEQs make it easier to compare TRI data with other EPA data and international data.

EPA is proposing these revisions in response to requests from TRI reporters that EPA provide facilities with a method of reporting TEQ data to provide important context for dioxin release data. In addition, EPA believes that the public will benefit from the additional context and comparability of data provided by TEQ reporting.

Q: If TEQs are the product of a simple mathematical formula using grams of weight multiplied by toxic equivalent factors assigned by the international scientific community, why doesn't EPA just calculate the TEQs in-house rather than requiring reporters to provide that information?

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A: The TRI data currently reported for dioxin and dioxin-like compounds are not detailed enough to use to calculate TEQ data specific to each release or waste management activity. In order for the facility or EPA to do TEQ calculations, the grams data for each individual member of the category must be available for each release or waste management practice. Two of the three options would include TEQ reporting, but one option in the proposed rule would have facilities report just the individual grams data and then EPA would calculate the TEQ data. Though EPA could, and would intend to, report TEQs alongside the reported data, there would be no regulatory or statutory requirement for it to do so.

Q: Why is EPA proposing to require facilities that report releases and waste management for dioxin and dioxin-like compounds to report these numbers electronically when the same information can be reported on paper for other chemicals?

A: In order to capture the individual grams data for each member of the category for each release and waste management activity, the proposed Form R-D will include many more data elements than are reported for other chemicals, which will increase the possibility for errors when EPA has to transfer data to the TRI database from hard copy reports. Requiring all Form R-Ds to be submitted electronically will result in less preparation error and fewer processing errors than are associated with paper submissions. As EPA stated in a recent letter to TRI reporting facilities, EPA has an ongoing effort to

modernize and streamline the TRI program. One goal of the modernization effort is to process all reporting forms via the Internet utilizing EPA's Central Data Exchange (CDX). Requiring that all Form R-D reports be submitted electronically, which includes submissions via CDX or diskette, would be one small step toward the ultimate goal of full Internet reporting. Go to: ***http://www.epa.gov/tri/TRI%20Re-Engineering%20Memo.pdf***

Q: Who has to report releases and other waste management information for dioxin and dioxin-like compounds?

A: Any facilities in specified Standard Industrial Codes (SIC) with 10 or more employees that exceed the reporting thresholds for dioxin and dioxin-like compounds and meet the other TRI reporting criteria must file a report. The individual sectors and facilities reporting on the TRI dioxin and dioxin-like compounds category will not change as a result of this proposed rule.

Q: How can I get more background on EPA's TRI Program and the proposed rule?

A: This information is available:
• on EPA's Web site ***http://www.epa.gov/tri/tridata/teq/teqmodrule.html***
• by calling an EPA representative listed at: ***http://epa.gov/tri/contacts.htm***   or
• by contacting the Emergency Planning and Community Right-to-Know hotline (toll-free) 1-800-424-9346 or (toll-free) TDD: 1-800-553-7672.